

REMARKS

Claims 1-8 are pending in the application. Claim 1 has been amended to more particularly indicate the steps the curing process consists of. Support for the amendments can be found at page 8, lines 4-26 of the specification.

Rejection Under 35 U.S.C. § 102(b)

Claims 1-4 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,229,252 to Flynn et al. (hereinafter "Flynn").

The present invention is directed to a "dual cure" process for coating a substrate by (1) applying to the substrate a coating composition that includes:

- A) at least one compound which contains at least two (meth)acrylate groups and at least one isocyanate-reactive group and which is free from isocyanate groups and blocked isocyanate groups,
- B) at least one blocked polyisocyanate, which does not contain any ethylenically unsaturated groups and
- C) at least one photoinitiator, and

(2) curing the coating composition by the action of UV light and (3) post-curing by increasing the temperature of the coating.

Flynn discloses a photoimageable composition for forming a solder mask that requires a "triple cure" process. The solder mask includes (1) a photopolymerizable acrylate chemical system which renders exposed portions insoluble to alkaline aqueous developers and (2) an epoxy chemical system which hardens the composition after exposure and development. The acrylate chemical system includes acrylate monomers, epoxy-acrylate oligomers and a photoinitiator. The epoxy chemical system includes an epoxy resin and a curative therefore. The composition further includes a cross-linking agent which is reactive with hydroxyl groups of the acrylate and epoxy chemical systems.

More specifically, Flynn teaches curing a mixture of various components (a) to (f) by 3 independent steps/mechanisms:

1. Curing the carbon-carbon double bonds of the acrylates, especially the epoxy acrylates (which do not initially contain any epoxy units, but which are obtained by reacting epoxy resins with acrylic acid, see col. 3, lines 1-13), which are cured by exposure to UV-irradiation (i.e. components (a) plus (c) in the presence of component (b)).
2. Curing the OH-groups of the epoxy-acrylates with suitable crosslinkers, such as blocked polyisocyanates (i.e. component (f))
3. Curing by crosslinking the epoxy resins (component (d)) with suitable crosslinkers such as acids or anhydrides (component (e)).

In other words, curing steps (1) and (2) of Flynn resemble some aspects of the present invention, however, the method disclosed by Flynn requires a third step as recited in (3), which is not required or allowed for in the amended claims.

Step (3) of the Flynn process is outside of the scope of amended claim 1, as the "consisting essentially of" transition phrase used in describing the present curing process precludes the addition of step (3) of Flynn. Thus, the process according to Flynn is certainly different from the process of the amended claims, since all constituents are dissolved in an organic solvent resulting in a clear solution followed by at least partial removal of the solvent, and then the resulting complex mixture is applied to a substrate. The mixture in Flynn never includes only constituents (A) to (C) as in the present invention.

As those skilled in the art are well aware, potentially explosive reactions can take place when epoxides and isocyanates are put together under alkaline

conditions at elevated temperatures (trimerization for example). Thus, interpreting the Flynn process as the Examiner has would result in an unusable process on a commercial scale.

As the discussion above clearly demonstrates, Claims 1-4 are not anticipated by Flynn and the rejection under 35 U.S.C. § 102(b) should be withdrawn.

Rejection Under 35 U.S.C. § 103(b)

Claims 15-8 stand rejected under 35 U.S.C. § 103(a) as being anticipated by Flynn in view of U.S. Patent No. 5,916,979 to Koegler et al. (hereinafter "Koegler"). The Examiner indicates that Koegler teaches the claimed blocking agents.

Koegler discloses an organosol polyester coating material that includes at least one linear and/or branched amorphous polyester in solution, at least one blocked polyisocyanate resin and/or at least one triazine resin. Koegler is not directed to UV-curing in any way. Koegler simply discloses the reaction of blocked NCO-groups with OH-groups, which is of limited relevance to the claimed invention. Using diisopropylamine as a blocking agent is known as is disclosed at page 5, line 14 of the specification.

The Examiner has not provided any motivation for a skilled artisan to (a) modify the teaching of Flynn by deleting the third curing mechanism taught and (b) replacing the Flynn-isocyanates by blocked isocyanates taught in the amended claims (which were certainly not invented by Koegler). The Examiner has used the present claims as a template to manipulate the state of the art to arrive at the claimed invention. Thus the Examiner has not provided a *prima facie* case of obviousness.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the

reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. MPEP § 2142 quoting In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

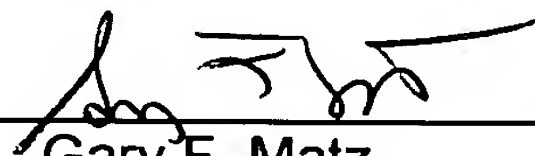
As the Examiner has not met any of the three elements listed above, claims 5-8 are not obvious over any combination of Flynn and Koegler. As such, the rejection of Claims 5-8 under 35 U.S.C. § 103(a) should be withdrawn.

CONCLUSION

Applicants assert that the amendments have placed the claims in form for allowance. In view of the above amendments and remarks, reconsideration of the rejections and allowance of claims 1-8 are respectfully requested.

Respectfully submitted,

By



Gary F. Matz
Attorney for Applicants
Reg. No. 45,504

Bayer Polymers LLC
100 Bayer Road
Pittsburgh, Pennsylvania 15205-9741
(412) 777-3897
FACSIMILE PHONE NUMBER:
(412) 777-3902
s:\shared\kgb\gm043am